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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : David L. Chapek
Serial No. : 09/605,293
Filed : June 28, 2000
Title : SEMICONDUCTOR DEVICES INCLUDING A LAYER OF
POLYCRYSTALLINE SILICON HAVING A SMOOTH
MORPHOLOGY
Docket : MIO 0037 VA/40509.118 (98-0831.01)
Examiner : N. Drew Richards
Art Unit : 2815

MAIL STOP APPEAL BRIEF-PATENTS

Commissioner for Patents
P.O. Box 1450
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REPLY BRIEF ON APPEAL

This Reply Brief is being filed pursuant to the provisions of 37 CFR 41.41(a)(1) in response to the Examiner's Answer mailed April 4, 2006. Arguments responsive to the issues raised in the Answer are set forth below. Pursuant to §41.43(a)(1), the Examiner is requested to acknowledge receipt and enter the reply brief.

Rejection of claims 9-12 and 14 under 35 U.S.C. 112, second paragraph, as being indefinite

Appellant first wishes to address the Examiner's statements at pages 3 and 4 of the Answer that because the appealed claims are directed toward a structure rather than a method, the claims (as interpreted by the Examiner) "do not require plasma source ion implantation" and the limitation "'free of sputtered metal contaminants' should not be read as requiring a lack of metal contaminants formed by the specific method of sputtering." The Examiner cannot ignore the manner in which the silicon dioxide layer is treated in view of the fact that the resulting composition of the silicon dioxide layer, which is free of sputtered metal contaminants, directly affects the *structure* and properties of the claimed semiconductor device precursor. *In re Luck*, 177 USPQ 523 (CCPA 1973) (To the extent that process limitations distinguish the product over the prior art, they must be given patentable weight).

At page 5 of the Answer, the Examiner further maintained that the term "free" as used in the limitation "free of sputtered metal contaminants" is indefinite, asserting that the specification does not provide any objective standard which would enable one skilled in the art to know what level of contaminants is needed to be considered "free." Appellant again wishes to point out that this rejection was made in a prior office action (2003), and appellant submitted arguments in response to the rejection which resulted in the withdrawal of the rejection. Appellant has repeatedly pointed out to the Examiner that the specification clearly describes the problem of sputtered metal contaminants resulting from the use of a Kaufmann ion source which includes a metal grid (see page 1), and teaches that using PSII reduces metal contamination because it eliminates the use of a metal grid (page 10). In light of this teaching in the specification, it is submitted that one of ordinary skill in the art would understand that the limitation "free of sputtered metal contaminants" means that the layer of silicon dioxide has no sputtered metal contaminants present.

Claims 9-12 and 14 are in compliance with §112.

Rejection of claim 9 under 35 U.S.C. 102(a) as being anticipated by Applicant's admitted prior art

The Examiner has maintained his interpretation of the limitation "free of sputtered metal contaminants" to mean "sufficiently free so as to operate," and has used his interpretation to take the position that "the claim as written is so broad as to read on a conventional layer." Appellant strongly disagrees. One skilled in the art would not interpret the limitation "free of sputtered metal contaminants" as encompassing a layer which *includes* sputter metal contaminants as a result of treatment with a Kaufman ion source as described in "Applicant's admitted prior art."

Rejection of claims 10-12 under 35 U.S.C. 103(a) as being unpatentable over Burns et al. (Principles of Electronic Circuits, pp. 380-381) in view of "Applicant's admitted prior art"

The Examiner acknowledges that Burns et al. do not teach a layer of silicon dioxide having hydrogen ions implanted therein or which is free of sputtered metal contaminants, but asserts that it would have been obvious to do so in view of "Applicant's admitted prior art." The Examiner further asserts that "Applicant's admitted prior art" teaches implanting hydrogen ions by a Kauffman ion source and that "Applicant's admitted prior art" teaches the silicon dioxide as being "free of sputtered metal contaminants." See the Answer at page 8, lines 1-2. However, there is no teaching in "Applicant's admitted prior art" that implanting hydrogen ions with a Kauffman ion source or any other source results in a layer which is free of sputtered metal contaminants as claimed. Rather, "Applicant's admitted prior art" teaches that use of a Kauffman ion source results in sputtered metal contamination of the target object.

As such, there is no motivation to combine the teachings of "Applicant's admitted prior art" with Burns et al. Even if the teachings were to be combined, the claimed invention would not result.

Rejection of claim 14 under 35 U.S.C. 103(a) as being unpatentable over Murata et al. in view of "Applicant's admitted prior art"

At page 9 of the Answer, the Examiner acknowledges that Murata et al. do not teach a substrate having hydrogen ions implanted therein or a substrate which is free of sputtered metal contaminants, but asserts that "Applicant's admitted prior art" teaches the silicon dioxide as being "free of sputtered metal contaminants." As pointed out above, there is no such teaching in "Applicant's admitted prior art." In fact, the teaching is directly to the contrary. As such, there is no motivation to combine the teachings of the references. And, even if the teachings were combined, the claimed invention would not result.

Conclusion

Appellant submits that the limitation "free of sputtered metal contaminants" is clear and definite when read in light of the specification. The claims are not anticipated by "Applicant's admitted prior art" which describes a technique which results in sputtered metal contamination on a layer surface, not a surface which is free of sputtered metal contaminants as claimed.

Further, Appellant submits that the Examiner has failed to carry his burden of establishing a prima facie case for obviousness and that the references of record fail to teach or suggest the subject matter of the remaining claims on appeal.

Respectfully submitted,

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